# Ayush Chopra

Senior Member of Technical Staff
Media and Data Science Research Lab, Adobe

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## Education

**Delhi Technological University, Delhi, India**　　　　　　　　　　　　　　　　　2014 - 2018
**(Formerly Delhi College of Engineering)**
B.Tech in Computer Science and Engineering
CGPA: 9.23/10.0

**Delhi Public School, Rohini, Delhi, India**　　　　　　　　　　　　　　　　　　　2014
All India Senior Secondary Certificate Examination
Percentage: 96%

## Publications

**Ayush Chopra**\*, Kumar Ayush\*, Anirudh Singhal, Utkarsh Patel, Balaji Krishnamurthy. "Towards a Unified Framework for Visual Compatibility Prediction." *Under Review at IEEE Winter Conference on Applications of Computer Vision (WACV)* 2020. (pdf)

**Ayush Chopra\***, Surgan Jandial\*, Kumar Ayush\*, Mayur Hemani, Balaji Krishnamurthy. "SieveNet: A Unified Framework for Robust Image-Based Virtual Try-on." *Accepted at IEEE Winter Conference on Applications of Computer Vision (WACV)* 2020. (pdf, demo)

**Ayush Chopra\***, Abhishek Sinha\*, Hiresh Gupta\*, Mausoom Sarkar, Balaji Krishnamurthy. "Powering Robust Fashion Retrieval With Information Rich Feature Embeddings." *Accepted at IEEE Computer Vision and Pattern Recognition Workshops (CVPR)* 2019. (Oral, **Best Paper Award**, pdf, media, slides, poster)

Kumar Ayush\*, Surgan Jandial\*, **Ayush Chopra\***, Balaji Krishnamurthy. "Robust Cloth Warping via Multi-Scale Patch Adversarial Loss for Virtual Try-On Framework." *Accepted at IEEE International Conference on Computer Vision Workshops (ICCV)* 2019. (Poster, pdf)

Kumar Ayush\*, Surgan Jandial\*, **Ayush Chopra\***, Balaji Krishnamurthy. "Powering Virtual Try-On via Auxiliary Human Segmentation Learning." *Accepted at IEEE International Conference on Computer Vision Workshops (ICCV)* 2019. (Poster, pdf)

Kushagra Mahajan\*, Tarasha Khurana\*, **Ayush Chopra\***, Isha Gupta, Chetan Arora. "Pose Aware Fine-Grained Visual Classification Using Pose Experts." *Accepted at 25th IEEE International Conference on Image Processing (ICIP)* 2018. (Poster, pdf, poster)

Shubham Dokania, **Ayush Chopra**, Feroz Ahmad, Anil Singh Parihar. "Hierarchy Influenced Differential Evolution: A Motor Operation Inspired Approach." *Accepted at 9th International Joint Conference on Computational Intelligence (IJCCI)* 2017. (Poster, pdf)

**Ayush Chopra**, Hema Bhandari, S.K. Dhawan. "Biocidal and Antistatic Performance of fabric modified with Polyaniline Microtubes." *Conference on Environmental Economics and Social Sustainability* 2014. (Oral, pdf)

## Patents

**Ayush Chopra**, Mausoom Sarkar, Surgan Jandial, Balaji Krishnamurthy. "Retrospection: An Online Mining Technique for Efficient Training of Deep Neural Networks." (In filing)

Kumar Ayush, **Ayush Chopra**, Surgan Jandial, Mayur Hemani, Balaji Krishnamurthy. "Accurately Generating Virtual Try-on Images Utilizing A Unified Neural Network Framework." *US* 16/679,165. (Filed)

Kumar Ayush, **Ayush Chopra**, Surgan Jandial, Mayur Hemani, Balaji Krishnamurthy. "Cloth Warping Using Multi-Scale Patch Adversarial Loss." *US* 16/673,574. (Filed)

Pinkesh Badjatiya, Nikaash Puri, **Ayush Chopra**, Anubha Kabra. "Entropy Based Synthetic Data Generation For Augmenting Classification System Training Data." *US* 16/659,147. (Filed)

**Ayush Chopra**, Nikaash Puri, Balaji Krishnamurthy. "Generating Combined Feature Embeddings For Minority Class Upsampling In Training Machine Learning Models With Imbalanced Samples." *US* 16/564,531. (Filed)

**Ayush Chopra**, Kumar Ayush, Abhishek Sinha, Hiresh Gupta, Mausoom Sarkar, Balaji Krishnamurthy. "Improving Performance of Neural Networks Using Learned Specialized Transformation Functions." *US* 16/534,856. (Filed)

**Ayush Chopra**, Jonas Dahl, Mausoom Sarkar, Abhishek Sinha, Hiresh Gupta, Balaji Krishnamurthy. "Identifying Digital Attributes from Multiple Attribute Groups Within Target Digital Images Utilizing Deep Cognitive Attribution." *US* 16/564,831. (Filed)

Jonas Dahl, Mausoom Sarkar, **Ayush Chopra**, Abhishek Sinha, Hiresh Gupta, Balaji Krishnamurthy. "Methods for Exploring and Recommending Matching Products Across Categories." *US* 16/417,373. (Filed)

## Work Experience

### Media and Data Science Research Lab, Adobe Inc
*Senior Member of Technical Staff* — June 2019 - Present
*Member of Technical Staff* — August 2018 - May 2019
*Intern* — June 2017 - January 2018
- Fundamental and Applied Research in Machine Learning (Deep Learning, Generative Models) with focus on applications in Computer Vision and Large Scale Data Mining.
- Developed solutions for Adobe Exp. Manager, Adobe Target and Adobe Data Platform

### Mythical Labs Inc.
*Technical Advisor* — March 2017 - Present
- Building RemoteHQ to help distributed teams work better.
- Launched on Product Hunt where RemoteHQ was voted #1 product of the day.

### MIT Media Labs
*Research Collaborator* — October 2018 - February 2019
- Worked with the Camera Culture group on data-driven non-line-of-sight (NLOS) imaging.🔍

### Google Summer of Code
*Mentor* — April 2018 - August 2018
- Supervised computer vision and data science projects for OpenFoodFacts (OFF).
- Shipped text detection and document parsing services used by over **100,000** users on the OFF mobile-app.🔍

### Coding Blocks
*Instructor* — October 2017 - July 2018
- Taught 12-week long boot-camps on introductory machine learning over the weekends.
- Interacted with over 400 students across eclectic backgrounds ranging from college freshman to big-4 consultants to cardiologists.🔍

### Computer Vision Lab, IIIT-Delhi
*Research Assistant* — October 2016 - June 2017
- Proposed an ensemble network to leverage pose structure for classification on datasets characterized by high intra-class and low inter-class variance.
- Published the work at 25th IEEE ICIP 2018.🔍

### Optimization Lab, DTU
*Research Assistant* — April 2016 - September 2016
- Proposed a hierarchical variant of differential evolution to optimize high dimensional, multi-modal and composite objective functions.
- Published the work at 9th IEEE IJCCI 2017. 🔍

### Soft Materials Division, National Physical Laboratory
*Research Intern* — July 2013 - March 2014
- Studied anti-static and biocidal properties of conducting polymeric substrates.
- Published the work at CEESS 2014. 🔍

## Achievements and Awards

### Best Paper Award - CVPR 2019 Workshop
Won the best paper award at (FFSS-USAD) held at CVPR 2019 [Details].

### #1 Product of the Day - Product Hunt
RemoteHQ voted the best product on launch day (24 October 2019). [Details]

### Early Promotion - Adobe
Promoted to Senior Member of Technical Staff within 9 months of joining Adobe. (Usual time is 1.5 year)

**INSPIRE Scholarship - Govt of India.**
Awarded by the Ministry of Human Resource Development for being in top 1% students in the country in AISSCE 2014.

**All India Rank - 3442 JEE (Joint Entrance Examination) - Mains**
Secured an All-India-Rank of 3442 out of 14,00,000 candidates (99.86 percentile).

**Principal's Award - Delhi Public School**
Awarded gold medal upon graduation for being a scholar for 7 consecutive years.

## Talks

**Powering Robust Fashion Retrieval With Information Rich Feature Embeddings** [Slides]     July 2019
Workshop on Fashion and Subjective Search (FFSS), CVPR, Long Beach, CA

**Panoptic Shopping: The Future of Visual Search** [Slides]     February 2019
Adobe Tech Summit, San Francisco, CA

**Computer Vision at Open Food Foods : Building the Nutrition Wikipedia**     October 2018
GSoC Mentor's Summit 2018, Sunnyvale, CA

**A Practitioner's Introduction to Machine Learning** [Code, Slides]     October 2017 - July 2018
Coding Blocks, India

## Positions of Responsibility

**Reviewer - WACV**
Peer-reviewer for both rounds of IEEE Winter Conference on Applications of Computer Vision 2020.

**Mentor - Adobe MDSR Research Internship**
Supervised intern projects in spring 2019 and fall 2019. Corresponding publications are currently under review

**Mentor - GSoC** [Details]
Recruited students and supervised projects with OpenFoodFacts at GSoC 2018.

## Technical Skills

**Languages:** Python, Java, Javascript, PHP
**Libraries:** Pytorch, Tensorflow, Caffe, NumPy, OpenCV, Flask, scikit-learn
**Others:** *LaTeX*